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THE MATHEMATICS TEACHER

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EDITORIAL.

The Old and the New.

Modern psychology has done much during the last decade or two in correcting false notions concerning various phases of education. The old idea that the study of some subjects furnished an all-round mental discipline entirely available for the handling of any other subject has been much modified and replaced by the more rational idea of the study of those subjects furnishing somewhat less general and some more special disciplines. It would seem, however, that there has been much misunderstanding and misinterpretation of the results of recent psychological study especially as stated by some writers, if indeed it is not true that some enthusiastic writers have overstated the truth and left the impression that practically nothing gained from the study of one subject is of value in the study of a new subject. If we mistake not the present view—the one arrived at after more sober thought—is that there is a good deal of value derived from the proper study of most subjects which is carried over and is helpful in the study of any other subject and that there are certain elements which are not carried over as available aids in the study of another. Just what elements of the general type and what elements of the particular type the study of each subject furnishes has perhaps not been carefully worked out for many subjects, but it is believed that for all subjects that which is carried over is more important than that which is not. Certainly it is so for mathematics.

In this period of active reform movement in the teaching of mathematics it might be well to remember that not everything that is old should be discarded because it is old and that not everything new is to be adopted because it seems new as a few would lead us to believe. That to which we shall settle down after the agitation is over will be neither all old nor all new, but out of the old and the new together will be evolved that which seems satisfactory to most people and will abide for a period at least. It will also be found that the new elements in the result have been in successful use in the past by individual teachers here and there, whose great aim has been to teach methods and how to apply them.

The Perry Movement.

A good deal has been written and said in this country concerning this movement, but Professor Perry complains that in England his ideas are little understood and we believe they are no better if not less understood here than there, due it may be to the difference in conditions. The latest pronouncement with reference to his ideas is perhaps that made by him at the joint meeting (held November 28 in London) of the MATHEMATICAL ASSOCIATION and the FEDERATED ASSOCIATIONS OF LONDON NON-PRIMARY TEACHERS. A very complete account of this meeting is given in the January number of the *Mathematical Gazette* from which the quotations which follow are taken. Professor Perry says: " It astonishes me to see how little comprehension there seems to be of the proposals made by the British Association Committees. We recommended experimental geometry with common-sense reasoning, and everybody seems to think that we asked for a babyish use of rulers and compasses following a series of propositions. We recommended some work with graphs on squared paper and some teachers do nothing but graphs, and there are dozens of school books to help on the craze. It reminds me of a friend who does so many things with cement that I almost think if he wanted a new umbrella he would make it of cement. Some teachers think that squared paper was invented merely to illustrate the solution of certain simultaneous or quadratic equations. I do not say that some teachers are carrying our reforms too far; I say that they do not at all comprehend the nature of the reforms suggested by the British Association and other committees."

Again speaking of his ideas he says: "I suppose we must consider the cases of: (1) The training of all children, the citizens of the future being supposed to be taught science for various good reasons: one, that he may take an interest in those things which are more important in transforming the world than all others: another, that he may learn scientific method, which will cause all his actions to be more efficient. Every man who has done important things in history was distinguished by his having scientific method, not perhaps gained in our modern way. We want the average man to have it now. (2) The training of the boy or man who intends to enter a profession of applied science. (3) The training of average men who intend to teach mathematics and science. (4) The training of a few mathematicians and scientists who may possibly become eminent, and may or may not become teachers. *I do not think that the early training of any of this class should differ from that of the others.*"* He feels that a boy should not wait until he can rigorously demonstrate a theorem before using it and says: "It is to be remembered that in the days of great scientific development, the days of Leibnitz and the Bernoullis, the days of Lagrange, the days of Fourier, powerful methods of analysis were used which were not proved to be legitimate until long years afterwards. * * * A student ought to use logarithms long before he approaches the proof of the exponential theorem. He ought to use Taylor's theorem long before he studies what the mathematicians might call a rigorous proof of it." Again he says: "To keep ourselves right, to prevent fashion and habit or bad example from leading us astray, we ought to stick to one great principle—*our object is not to convey information, or a thousand labor-saving rules, our object is to teach scientific method.*"* "Accuracy in algebra, accuracy in measuring, each of these is as essential as the other to the success of our reforms." It should also be remembered that Professor Perry does not expect the reforms to be brought about under present conditions, for he says before it can be brought about: "Salaries must be doubled and forms halved in their number of boys."

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* Italicised by editor.